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भारतीय मानक

# पैकेजबंदी — इकाई भार साइज — आयाम

*Indian Standard*

# PACKAGING — UNIT LOAD SIZES — DIMENSIONS

UDC 621.798:006.78

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**BUREAU OF INDIAN STANDARDS**
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

*February* 1995

**Price Group 1**

Transport Packages Sectional Committee, LM 25

## NATIONAL FOREWORD

This Indian Standard which is identical with ISO 3676 : 1983 'Packaging — Unit load sizes — Dimensions', issued by the International Organization for Standardization (ISO), was adopted by the Bureau of Indian Standards on the recommendation of the Transport Packages Sectional Committee (LM 25) and approval of the Light Mechanical Engineering Division Council.

In the adopted standard, certain terminology and conventions are not identical with those used in Indian Standards; attention is specially drawn to the following:

a) Wherever the words 'International Standard' appear, referring to this standard, they should be read as 'Indian Standard'; and

b) Comma (,) has been used as a decimal marker while in Indian Standards the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exist. The corresponding Indian Standards which are to be substituted in their place are listed below along with their degree of equivalence for the editions indicated:

| *International Standard* | *Corresponding Indian Standard* | *Degree of Equivalence* |
|---|---|---|
| ISO 3394 : 1984 | IS 8470 : 1977 Dimensions of rigid rectangular transport packages | Technically equivalent |
| ISO 1894 : 1979[1] | IS 13288 (Part 1) : 1993 Series 1 Freight containers — Specification and testing | Identical |

The concerned technical committee has reviewed the provisions of ISO/R 198 referred in this adopted International Standard and has decided that this is acceptable for use in conjunction with this standard.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

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[1] ISO 1894 has since been replaced by ISO 1496 - 1 : 1990 'Series 1 Freight containers — Specification and testing — Part 1 : General cargo containers for general purposes' which is identical with IS 13288 (Part 1) : 1993.

*Indian Standard*

# PACKAGING — UNIT LOAD SIZES — DIMENSIONS

## 0 Introduction

It has to be recognized that a single overall system based on a common module is unlikely to cover all packaged goods in the world, because of substantial differences in the sizes, shapes, and densities of the products, great variety in handling devices, regional government legislation, etc.

However, the application of such a system should be striven for, as a long-term policy goal, assuming that this does not lead to the exclusion of commodity dimensions and goods, which are compatible with the modular system.

A standardized unit-load dimension must prevent inadvertent oversizing, and thus jamming against internal walls, or undersizing, and thus wasting cargo vehicle space and/or rendering the load susceptible to transit damage.

Determining acceptable deviations in dimensions of unit loads is a complex matter, since the dimensions of the transport package, and thus the load itself, tend to change during the filling, handling, warehousing, and transport. (See figure 1.)

One factor affecting the measurement of the unit load is "load bulge" (filling, compression, and settling bulge). Factors influencing the "load bulge" are : transport package materials, nature of contents, length of time in storage, moisture and temperature conditions, and transit conditions.

Another cause of unit load enlargement is "stacking irregularity" (unitizing inefficiency, out-of-plumb stacking, and out-of-square stacking) which occurs frequently and particularly in manual formation of the transport package layers in a unit load.

Such factors, which tend to change the plan dimensions of the unit load, cannot always be avoided but they must be controlled by providing a dimensional deviation for the standardized unit loads.

When choosing transport package materials and when adding subsequent layers of transport packages to complete the unit load, it should be ensured that the resulting overall length and width dimensions do not exceed the referenced plan dimensions of the unit load, at any stage of the distribution chain.

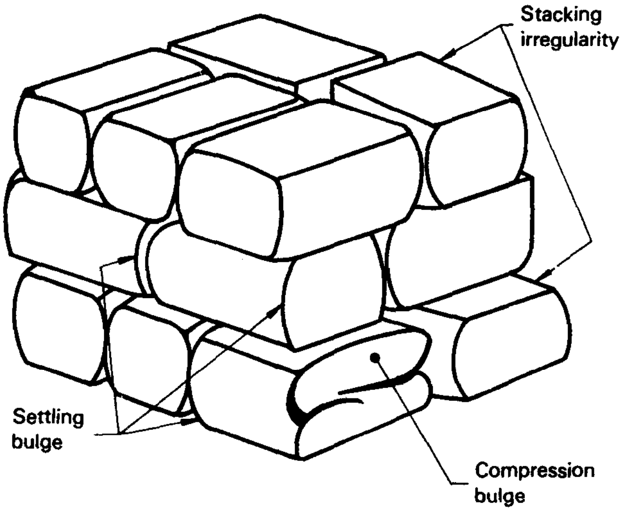

**Figure 1 — Dimensional deviations for unit loads**

## 1 Scope and field of application

This International Standard is based on the concept of a modular system and specifies the plan dimensions for unit loads suitable for distribution of goods, which comprises all activities for the movement of products from their origin to their destination.

## 2 References

ISO/R 198, *Double-deck flat pallets for through transit of goods.*

ISO 1894, *General purpose series 1 freight containers — Minimum internal dimensions.*

ISO 3394, *Dimensions of rigid rectangular packages — Transport packages.*

## 3 Definitions

For the purpose of this International Standard, the following definitions apply.

**3.1 distribution of goods** : Movement of products from their point of origin to their destination and consisting of the following basic elements : packaging, unit loads, material-handling systems, storage facilities and means of transportation.

**3.2 system** : An entity consisting of interdependent components.

**3.3 modular system** : A system consisting of components which are related to the module.

**3.4 plan dimensions** : The dimensions of the rectangle defined on a horizontal surface by the four vertical planes intersecting at right angles which enclose a unit load free-standing on that surface. (See figure 2.)

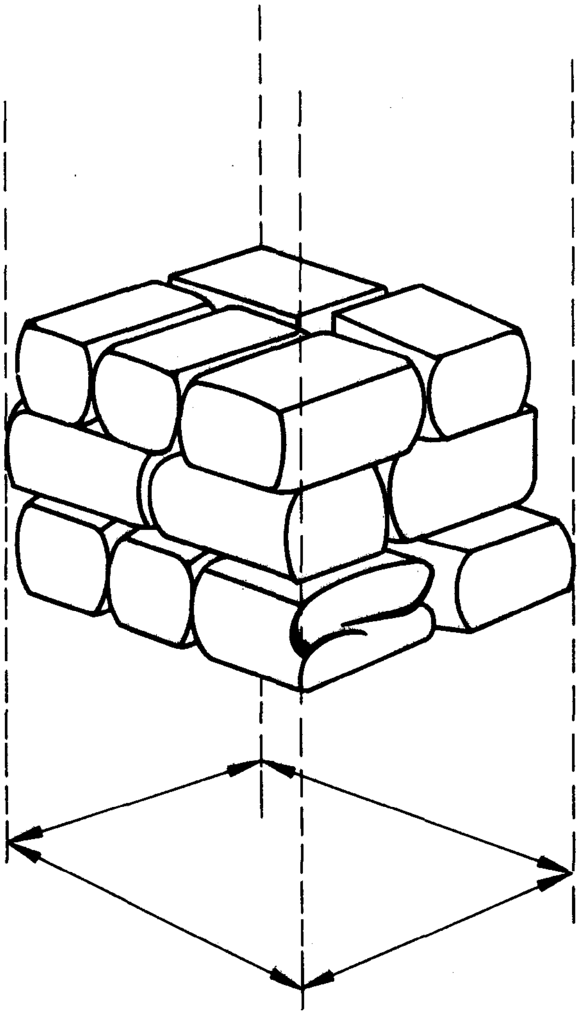

Figure 2 — Plan dimensions

**3.5 module** : A reference measurement to which the dimensions of the components of the distribution system can be related arithmetically.

**3.6 unit load** : A load consisting of items or packages held together by one or more means, and shaped or fitted for handling, transporting, stacking and storing as a unit. The term is also used to describe a single large item suitable for the same purpose.

## 4 Dimensions

**4.1** The plan dimension of the preferred modular unit load shall be 1 200 mm × 1 000 mm. This unit load is derived from the basic 600 mm × 400 mm module, and as such it is an element of the modular distribution system.

**4.2** This International Standard also recognizes the plan dimension of 1 200 mm × 800 mm unit load.

**4.3** This International Standard also recognizes the plan dimension of 1 140 mm × 1 140 mm for square unit loads.

NOTE — This plan dimension is derived from the minimum internal width of the ISO series 1 general purpose freight container. Future developments in freight container technology and construction may permit increases in the plan dimensions of the square unit load at future reviews up to the limits of the modular dimension of 1 200 mm.

## 5 Dimensional deviations

**5.1** The plan dimensions of the modular unit load outlined in 4.1 and the other two unit loads specified in 4.2 and 4.3 are maximum dimensions.

NOTE — In acknowledgement of ISO/R 198, a slight increase is permitted to the dimensions in 4.1 and 4.2, provided that a single layer does not exceed the plan dimensions specified in 4.1 and 4.2, in accordance with ISO 3394.

**5.2** The permitted maximum deviation from the plan dimensions specified in 4.1, 4.2 and 4.3 is −40 mm.

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This Indian Standard has been developed from Doc : No. LM 25 ( 0198 ).

**Amendments Issued Since Publication**

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